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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,421	11/02/2000	Mark W. Bradley	INSTP007B	6524

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EXAMINER

DELGADO, MICHAEL A

ART UNIT	PAPER NUMBER
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2144

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/705,421

Applicant(s)

BRADLEY, MARK W.

Examiner

Michael S. A. Delgado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,400,7300 by Latif et al in view of Andrew S. Tanenbaum "Structured Computer Organization, Third edition", 1990.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Latif teaches all the function of a protocol conversion module that is implemented mostly in hardware but does not explicitly teach about its implementation in software module. It is well known in the art that software can be used interchangeable with hardware without taking away from the spirit of the invention. This was disclosed by Tanenbaum, who teaches that

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implementing a function in hardware is equivalent to implementing that same function in software (Page 11, lines 21-27). It would have been obvious at the time of the invention for some one of ordinary skill to use a software approach because of its flexibility.

In a situation, which requires frequent changes, it is better to use a software approach as changes can be applied dynamically. Hardware is more concrete and changes are most difficult to apply.

In claim 1, Latif teaches about a system for software module "port interface" to module "port interface" communication, comprising (Fig 5), (Col 2, line 55- Col 3, 5), (Col 18, lines 50-67):

a module interface "Switch Device" capable of receiving a message configured in a first format "SCSI", the module interface further capable of translating the received message into a second format "Fibre Channel- FC" (Fig 5), (Col 2, line 55- Col 3, 5), (Col 18, lines 50-67);

a first software module "port interface SCSI" in communication with the module interface "Switch Device", the first software module capable of communicating messages configured in the first format "SCSI" to the module interface (Fig 5), (Col 2, line 55- Col 3, 5), (Col 18, lines 50-67); and

a second software module "port interface FC" in communication with the module interface "Switch Device", the second software module capable of communicating messages configured in the second format "FC" to the module interface, wherein the first software module is capable of communicating with the second software module via the module interface to facilitate data storage (Fig 5), (Col 2, line 55- Col 3, 5), (Col 18, lines 50-67).

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In claim 2, Latif teaches about a system as recited in claim 1, wherein the module interface “Switch Device” is further capable of translating the received message “SCSI” into a third format “Gigabit Ethernet” (Fig 5),(Col 2, line 55- Col 3, 5), (Col 18, lines 50-67).

In claim 3, Latif teaches about a system as recited in claim 2, wherein the second software module “port interface FC” is capable of providing a first function related to a first hardware type “Fibre Channel- FC” (Fig 5),(Col 2, line 55- Col 3, 5), (Col 18, lines 50-67).

In claim 4, Latif teaches about a system as recited in claim 3, wherein a third software module “port interface- Gigabit Ethernet” capable of communicating messages configured in the third format “Gigabit Ethernet” to the module interface “Switch Device” and capable of providing a second function “Fibre Channel Services” related to a second hardware type “Fibre Channel- FC” can replace the second software module “port interface FC” (FPGA are reprogrammable), and wherein the first software module “port interface SCSI” is capable of communicating with the third software module “port interface -Gigabit Ethernet” via the module interface “Switch Device” (Fig 5),(Col 2, line 55- Col 3, 5), (Col 18, lines 50-67), (Col 7, lines 45-65). Communication between ports and Management processor allows the execution of different function (Col 7, lines 50-60)

In claim 5, Latif teaches about a system as recited in claim 5, wherein the first hardware type uses a SCSI protocol, and wherein the second hardware type uses a Fibre Channel protocol (Fig 5),(Col 2, line 55- Col 3, 5), (Col 18, lines 50-67).

In claim 6, Latif teaches about an independent storage node “Fig 5-Switch”, comprising:  
a processor “Management processor Fig 5, 250” (Col 7, lines 45-65);  
transport hardware “Switch Fabric Fig 5, 240” in communication with the processor, the  
transport hardware being capable of communicating data via a transport connection  
“Management Bus Fig 5, 255” (Col 7, lines 45-65); and

modular storage software executing on the processor (Covered in claim 1), the modular  
storage software comprising a plurality of software modules and a module interface that allows  
dynamic binding of the software modules (Covered in claim 1), wherein the modular storage  
software is capable of executing on a plurality of processor types by using particular software  
modules related to a specific processor type (Col 7, lines 40-45). (This feature is accomplished  
using the driver software in combination with the protocol conversion. It is well known in the art  
that software drivers are used as a go between operating system and hardware to compensate for  
hardware differences thus gives the interface a transparent look.)

In claim 7, Latif teaches about an independent storage node as recited in claim 6, wherein  
the modular storage software is configured to execute on the specific processor type by replacing  
a particular software module included in the modular storage software with a new software  
module related to the specific processor type (Col 7, lines 40-45). (This feature is accomplished  
using the driver software in combination with the protocol conversion. It is well known in the art  
that software drivers are used as a go between operating system and hardware to compensate for  
hardware differences thus gives the interface a transparent look.)

In claim 8, Latif teaches about an independent storage node as recited in claim 6, wherein the new software module "port interface" is capable of communicating with the processor "Management processor" via the module interface "switch fabric" (Fig 5), (Col 2, line 55- Col 3, 5), (Col 18, lines 50-67), (Col 7, lines 45-65).

### *Conclusion*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 6,640,278 by Nolan et al, teaches about a method for configuration and management of storage resources in a storage network.

US Patent No. 6,493,761 by Baker et al, teaches about a systems and methods for data processing using a protocol parsing engine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael S. A. Delgado whose telephone number is 703-305-8057. The examiner can normally be reached on 8 AM - 4.30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (703)308-5221. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
MD

February 18, 2004

  
**DAVID WILEY**  
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